

Inserta Products, Inc.

MODULAR CONNECTORS CODE 61 & 62 4-BOLT SPLIT FLANGE TYPE

The INSERTA® CODE 61 and CODE 62 4-Bolt, Split Flange Type, Modular Connectors, are used in integrated hydraulic systems in place of welded and threaded pipe fittings. These are the original INSERTA® Modular Connectors whose port face widths are made to accommodate the width of the SAE CODE 61 and CODE 62 Split clamp flanges.

Design A and B Modular elbows, run tees, branch tees, and crosses are held in place by bolts that extend from Face 1 to Face Ø in the 4-bolt flange pattern.

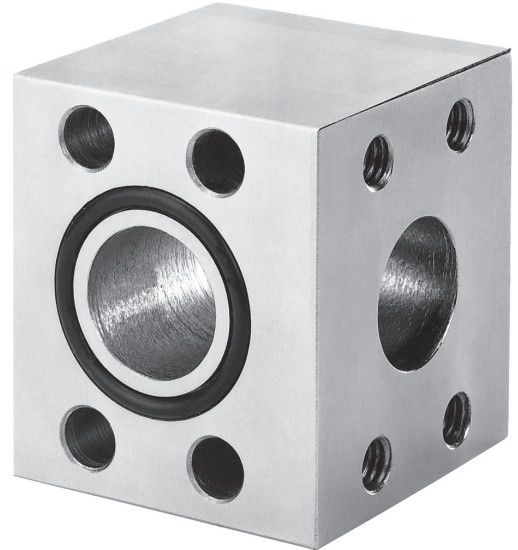
Design-A incorporates the 4-Bolt clamp face groove and sealing O-ring on Face Ø and a plain face on Face 1. This design permits stacking various INSERTA® flange type modules together with a minimum of O-ring seals to virtually eliminate leaks associated with pipe threads. The task is further enhanced because using large wrenches with high torque normally needed to install pipe fittings are no longer required since the INSERTA® Modular Connectors bolt together.

Design-B eliminates the 4-Bolt clamp face groove and O-ring on Face Ø for those applications that require this geometry.

Design-C has port faces on all designated port faces, and therefore are not held together by thru bolts (as in Designs A & B), but are port faces that other flange type components are fastened.

INSERTA® Modular Connectors have inch fastener clearance holes and threads as standard. Thread depths may not be as specified in the latest revisions of SAE J518-1 and SAE J518-2. Thread engagements were designed to provide equal chance of failure in the female thread of the Modular Connector, or a Grade 5 fastener allowable in earlier J518 standards. SAE J518-1 and SAE J518-2 now indicate that metric fasteners are to be used in all new designs, and SAE J429 Grade 8 Hexagon Head screws or ASME 18.3 SHCS of ASTM A574 material are specified when inch fasteners are used.

Standard CODE 61 and CODE 62 Modular Connectors, have all flange ports of the same size, and are made of steel. These are designed for use with inch fasteners. Contact the factory for metric fastener options.



ORDERING INFORMATION

STANDARD OUTLETS

INSERTA® ICX — A — 61 24 — * — G* — T*
MODULAR CONNECTORS

- CX = CROSS
- EL = ELBOW
- TR = TEE, RUN
- TB = TEE, BRANCH
- PS = PORT SPACER (A&B DESIGN)

MOUNTING DESIGN CODE

- A = SEAL GROOVE & O-RING ON FACE Ø WITH 4-BOLT PATTERN THRU HOLES FROM FACE 1 TO FACE Ø
- B = PLAIN FACE Ø WITH 4-BOLT PATTERN THRU HOLES FROM FACE 1 TO FACE Ø
- * Non-standard option - consult factory for availability
- C = 4-BOLT FLANGE PORTS ON ALL DESIGNATED FACES

MOUNTING PATTERN

- 61 = CODE 61
- 62 = CODE 62

TEST PORT**

- T = #4 SAE (7/16-20) or P=1/4 NPTF
- * = 1, 3, 4 and 5 PORT FACE POSITIONS

GAUGE PORT**

- G = #6 SAE (9/16-18)
- * = 1, 3, 4 and 5 PORT FACE POSITIONS

SEAL COMPOUND

- (OMIT FOR DESIGNS B & C)
- N = BUNA N-70 Duro (STANDARD)
- M = BUNA N-90 Duro (Upon Request)
- V = VITON

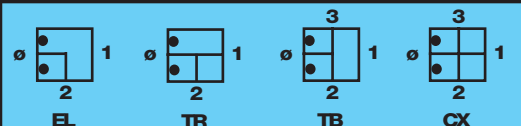
NOMINAL SIZE

- | | |
|------------|------------|
| 08 = 1/2 | 32 = 2 |
| 12 = 3/4 | 40 = 2 1/2 |
| 16 = 1 | 48 = 3 |
| 20 = 1 1/4 | 56 = 3 1/2 |
| 24 = 1 1/2 | 64 = 4 |

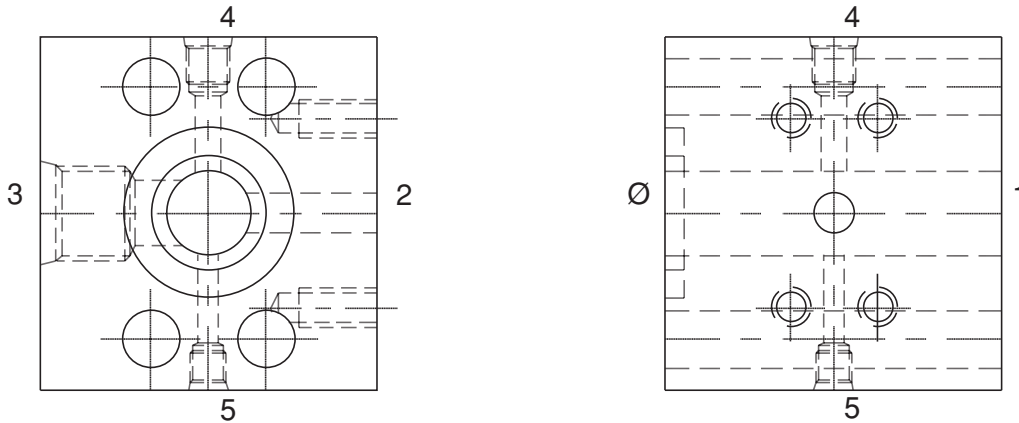
**Gauge & Test Port Guidelines (Refer to Page 15).

Inserta Products, Inc.
Blue Bell, Pa. 19422

**MODULAR CONNECTORS
CODE 61 AND CODE 62
4-BOLT SPLIT FLANGE TYPE**



CODE 61 AND CODE 62 MODULAR CONNECTORS WITH OPTIONAL OUTLETS.

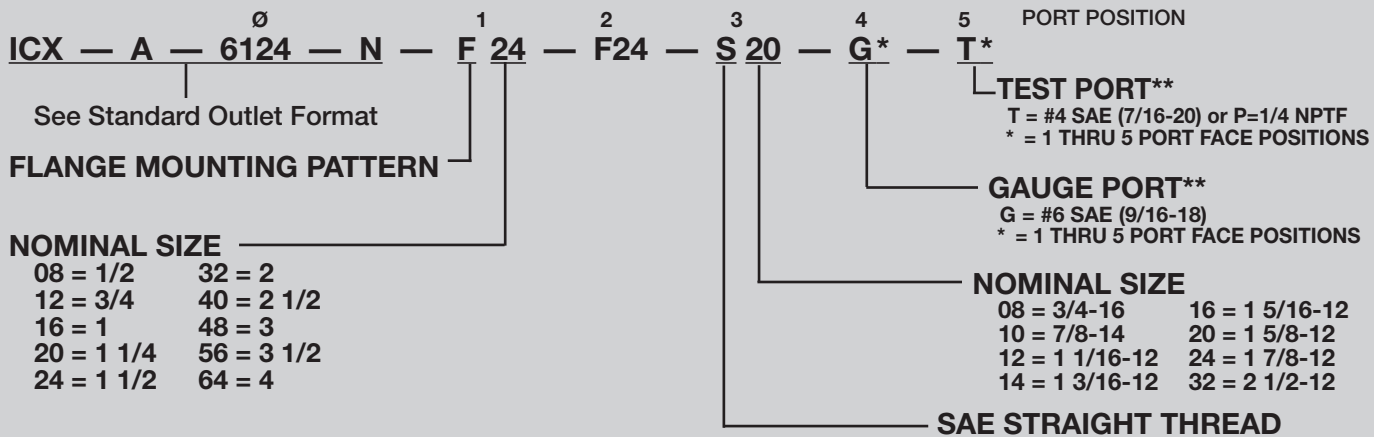


INSERTA® Modular Connectors with optional outlets add flexibility to piping systems by allowing size reductions. Although the **ADAFLANGE™*** adapters have all but eliminated the need for threaded ports in the **INSERTA® Modular Connectors**, they are still offered for those who want them. Side outlets are available in the same size as the flange pattern on face Ø or any smaller size. Flange patterns will always be the same SAE code as the one on face Ø. To order, select the product type and specify each port. If no outlet port is required, put an O in that position. The actual optional **INSERTA® Modular Connector** size may be smaller than the standard outlet models as this is determined by the actual outlet sizes selected.

***ADAFLANGE™** is a trademark of **ADACONN®**

ORDERING INFORMATION

FOR OPTIONAL OUTLETS



EXAMPLE 1:

INSERTA® cross, 1 1/2" Code 61 with 1 1/4" Code 61 flange side outlet, #20 SAE straight thread side outlet, gauge port, and test port.

ICX - A - 6124 - N - F24 - F24 - S20 - G4 - T5

EXAMPLE 2:

INSERTA® branch tee, 1 1/2" Code 61 with a gauge port at position 1 and 2-1" flange side outlets.

ITB - A - 6124 - N - G1 - F20 - F20

EXAMPLE 3:

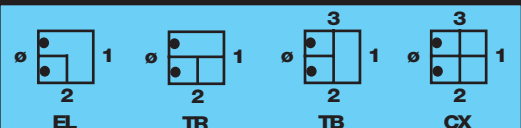
INSERTA® elbow, 1 1/4" Code 62 with #20 SAE straight thread outlet, gauge port at position 3 and a test port at position 5.

IEL - A - 6220 - N - O - S20 - G3 - O - T5

**Gauge & Test Port Guidelines (Refer to Page 15).

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MODULAR CONNECTORS
CODE 61 AND CODE 62
4-BOLT SPLIT FLANGE TYPE

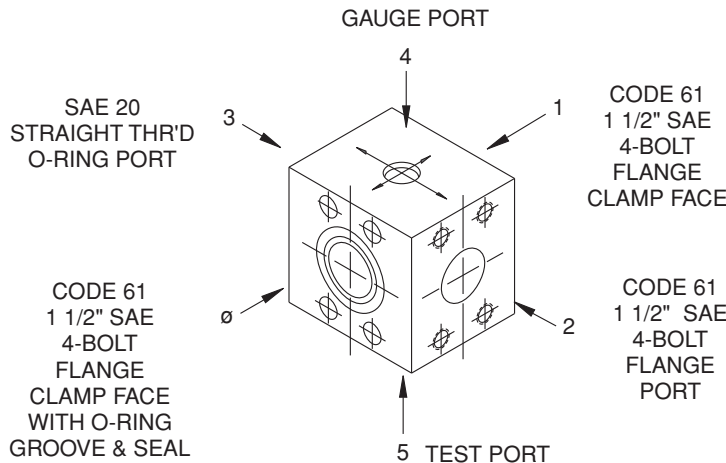


VIEWING CODE 61 AND CODE 62 MODULAR CONNECTORS WITH OPTIONAL OUTLETS

INSERTA® CODE 61 AND CODE 62 4-Bolt Split Flange Type Modular Connectors with other optional porting arrangements are available and can be specified by using the ordering information in the catalog for optional outlets. The following isometric drawings will help one to visualize the three examples that are given in the catalog.

Example 1:

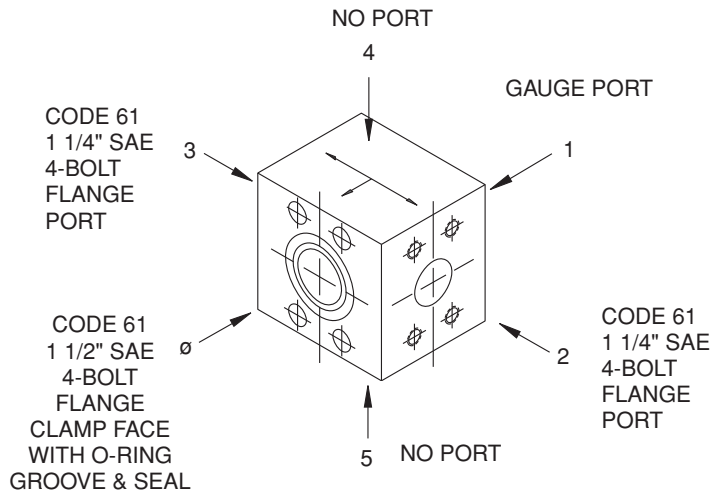
INSERTA® Design A Cross, Code 61 with 1/2" Code 61 flange side outlet, #12 SAE straight thread side outlet, gauge port on Face 4 and Test Port on Face 5.



INSERTA® Part No. ICX-A-6124-N-F24-F24-S20-G4-T5

Example 2:

INSERTA® Branch tee, 1 1/2" Code 61 with 2-1" Code 61, flange side outlet and a gauge port at position 1.

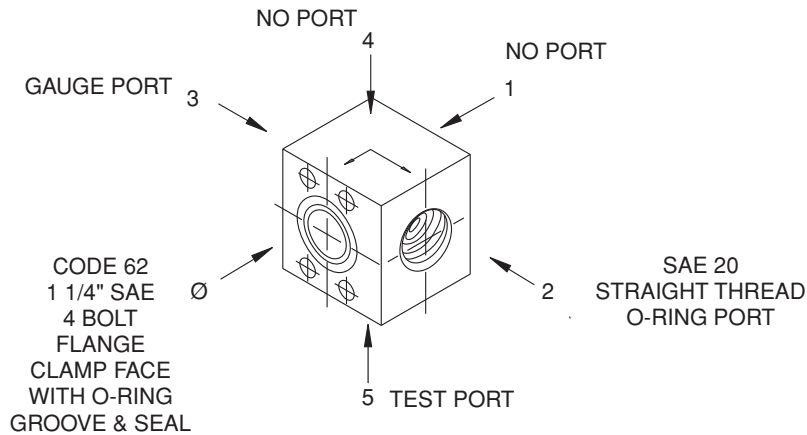


INSERTA® Part No. ITB-A-6124-N-G1-F20-F20

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Example 3:

INSERTA® Elbow, 3/4" Code 62 with #12 SAE straight thread outlet, gauge port at position 3 and a test port at position 5.



INSERTA® Part No. **IEL-A-6220-N-O-S20-G3-O-T5**

Note that in the above part number an O is placed on each face that doesn't have a port between two specified ports to confirm that a port is omitted. However, an O or a series of O's are not employed if they are at the end of the part number and not between specified ports. Example 2 is such a case when the need for additional O's is superfluous and therefore is not used. It should also be noted that the orientation of all 4-Bolt flanges are the same as for standard outlets.

Contact the factory for special outlet Modular Connectors such as when one requires both Code 61 and Code 62 flanges or other flange standards mixed on the same connector. This would also be the case for Modular Connectors where one may want special rotational relationships to exist between the various flange ports.

GAUGE and TEST PORT GUIDELINES

By definition an **INSERTA®** Gauge Port is a #6 SAE (9/16-18) Port, and an **INSERTA®** Test Port is either a #4 SAE (7/16-20) or 1/4" NPTF Port. If these port sizes are used for functions other than Gauge or Test Ports, they are still to be specified as G, T or P ports respectively in an **INSERTA®** Modular Connector Part Number.

MODULAR CONNECTORS:

The Modular Connector Smart Part Number with standard outlets describes in sequence: the connector's product type, the Face Ø mounting design, the mounting pattern and nominal size, and the seal material if one is required on Face Ø. All other ports are defined for modular connectors and have the same flange size as Face Ø and are oriented in the same manner. A Gauge or Test Port can be placed in any available unused face by adding the respective G, T or P and its face position to the port number in port face position sequence. The example shows T5 test port and G4 gauge port correctly added to a modular connector part number as underlined, i.e. ICX-A-6124-N-G4-T5.

MODULAR CONNECTORS WITH OPTIONAL OUTLETS:

The Modular Connector Smart Part Number with optional outlets describes in sequence: the connector's product type, the Face Ø mounting design, the mounting pattern and nominal size, and the seal material if one is required on Face Ø. To order, specify what ports are required in positions 1 thru 3 in port face sequence. A zero should be placed on any face that does not have a port. A Gauge or Test Port can be placed in any available port face by adding a G, T, or P and its face position in port face position sequence. Example 1 shows the modular connector with optional ports and gauge and test ports, as underlined, i.e. ICX-A-6124-N-F24-F24-S20-G4-T5.

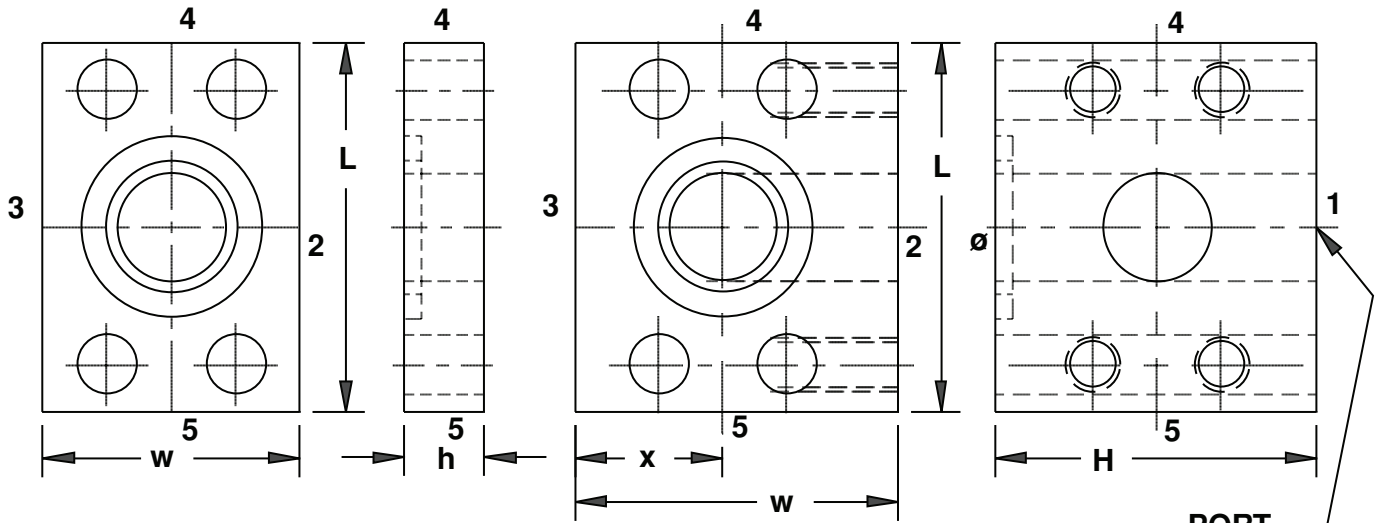
INSERTA® Modular connector Smart Part Numbers give you the tool to specify what you need for your integrated hydraulic system.

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CODE 61 PORT SPACER

Ø FACE VIEW

ELBOW/TEE, RUN



DESIGN A = AS SHOWN on drawings above and the title block schematics below.
 DESIGN B = Eliminates seal groove and O-Ring from Face Ø.
 DESIGN C = 4-Bolt flange ports on all designated faces.

**PORT
TEE RUN
ONLY**

CODE 61

NOMINAL SIZE	H	L	W	X	PORT SPACER		O-RING SIZE NO.
					h	w	
6108	1.97	2.12	1.97	0.99	1.00	1.31	210
6112	2.22	2.56	2.28	1.14	1.00	1.63	214
6116	2.72	2.75	2.72	1.24	1.00	1.88	219
6120	2.97	3.12	2.97	1.48	1.00	2.12	222
6124	3.27	3.69	3.46	1.75	1.00	2.50	225
6132	3.96	4.00	3.96	2.00	1.00	3.00	228
6140	4.47	4.50	4.47	2.25	—	—	232
6148	5.20	5.31	5.20	2.60	—	—	237
6156	5.46	6.00	5.46	2.75	—	—	241
6164	5.96	6.38	5.96	3.00	—	—	245

CODE 62

6208	1.97	2.22	1.97	0.99	1.00	1.50	210
6212	2.47	2.82	2.47	1.23	1.00	1.88	214
6216	2.97	3.19	2.97	1.50	1.00	2.12	219
6220	3.27	3.75	3.46	1.75	1.00	2.38	222
6224	3.77	4.44	3.96	2.00	1.00	2.75	225
6232	4.47	5.25	4.96	2.50	1.00	3.38	228
6240	5.96	6.87	5.96	3.00	—	—	232
6248	8.46	8.50	8.46	3.50	—	—	237

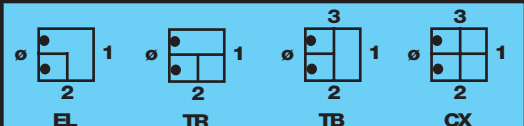
Fastener mounting patterns and O-ring sizes conform to SAE Standard J518 parts 1 & 2. Note that fastener clearance holes and threads are made for use with UN inch fasteners, while the current SAE standard indicates that metric threads are to be used for new designs. Consult factory for modular connectors intended for use with metric fasteners.

Thread depths may not be as specified in the latest revisions of SAE J518-1 and SAE J518-2. The thread depths furnished were designed to prevent the stripping of internal threads when torqued to the limits specified in SAE J518 Jun93.

The total depth of thread was made to accept the use of fasteners to attach standard SAE flanges to the Inserta® modular fittings without bottoming. Minimum thread depths were determined using the formulas in ASNI B1.1 that considered the yield strengths of both the modular fitting and the fasteners. Thread shear stresses were also limited to 70% of the internal thread material.

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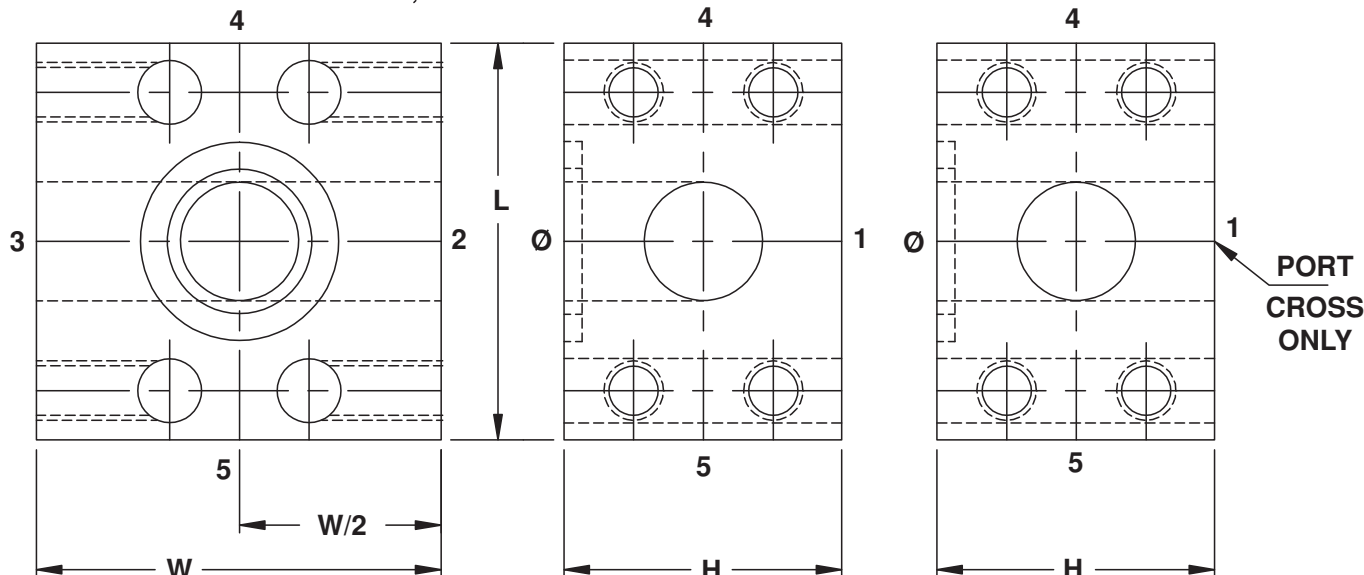
**MODULAR CONNECTORS
CODE 61 AND CODE 62
4-BOLT SPLIT FLANGE TYPE**



**END VIEW
(TEE BRANCH & CROSS)**

TEE, BRANCH

CROSS



DESIGN A = AS SHOWN on drawings above and the title block schematics below.
 DESIGN B = Eliminates seal groove and O-Ring from Face Ø.
 DESIGN C = 4-Bolt flange ports on all designated faces.

MODULAR CONNECTORS

CODE 61

NOMINAL SIZE	H	L	W	O-RING SIZE NO.
6108	2.00	2.12	2.00	210
6112	2.25	2.56	2.28	214
6116	2.72	2.75	2.72	219
6120	2.97	3.12	2.97	222
6124	3.25	3.69	3.50	225
6132	4.00	4.00	4.00	228
6140	4.50	4.50	4.50	232
6148	5.25	5.31	5.20	237
6156	5.50	6.00	5.50	241
6164	6.00	6.38	6.00	245

CODE 62

6208	2.00	2.20	2.00	210
6212	2.50	2.82	2.50	214
6216	3.00	3.20	3.00	219
6220	3.25	3.80	3.50	222
6224	3.75	4.50	4.00	225
6232	4.50	5.25	5.00	228
6240	6.00	6.88	6.00	232
6248	8.46	8.50	8.46	237

GAUGE PORTS, #6 SAE (9/16-18) are available on elbows and branch tees at position 1, on elbows and run tees at position 3, and on all modular connectors size 24 and larger at positions 4 and 5.

TEST PORTS are available on elbows and branch tees at position 1, on elbows and run tees at position 3 and on all modular connectors size 20 and larger at positions 4 and 5.

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